

Title (en)
Granules syringe.

Title (de)
Granulatspritze.

Title (fr)
Séringue pour granulés.

Publication
EP 0470393 B1 19941019 (DE)

Application
EP 91111696 A 19910712

Priority
DE 9011685 U 19900810

Abstract (en)
[origin: JPH04244164A] PURPOSE: To effectively impregnate small particles by arranging pistons in such a state as reciprocating in the rear side of a plug, arranging a valve means in the rear side of the plug, and forming the valve means in such a state as being closed, when the pistons are retreated, and opened, when they are forwarded. CONSTITUTION: It is assumed that a small-particle injector is constituted of a cover 21 which permeates liquid and is movably arranged in an outer cylinder 10, and a plug 12 which partitions the rear end of a partition chamber and has a function discharging the impregnated small particles from the partition chamber. The plug 12 is so formed as to permeate air and pistons 15, 17 separate from the plug 12 are so arranged in the outer cylinder 10 as to reciprocate in the rear side of the plug 12 separated from the partition chamber. A valve means 19 which is arranged in the rear side of the plug 12 is so formed as to be closed, when the pistons 15, 17 are retreated from the front edge part of the outer cylinder 10, and as to be opened, when the pistons 15, 17 are forwarded.

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A61M 5/315

IPC 8 full level
A61B 17/88 (2006.01); **A61F 2/46** (2006.01); **A61M 3/00** (2006.01); **A61M 5/315** (2006.01)

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A61B 17/8827 (2013.01 - EP US); **A61F 2/4601** (2013.01 - EP US); **A61M 5/31513** (2013.01 - EP US); **A61B 17/7095** (2013.01 - EP US); **A61B 17/7098** (2013.01 - EP US)

Citation (examination)
Prospectus der Granulatspritze der Firma Orthomatrix

Cited by
KR100834109B1; WO2018010914A1; EP1038509A1; KR101050957B1; FR2790946A1; FR2696096A1; EP1066852A1; EP0711535A1; US5697932A; US8038962B2; US6530928B1; WO0215950A1; WO2005014068A1; WO9525483A1; WO2018077575A1; US10980588B2; US8540658B2; US8641667B2; US8679072B2; US7445633B2; US8382836B2; US8632242B2

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